CLAIMS

What is claimed is:

1. A Common Object Request Broker Architecture (CORBA) gateway, comprising:

a CORBA gateway translator that compares information sent between the CORBA gateway and a remote application with predetermined rules set for determining a subsequent action to be taken and executes the predetermined rules to obtain the subsequent action; and

at least one of:

a CORBA server object that facilitates invoking operations in the CORBA gateway by the remote application; and

a CORBA client proxy object that facilitates interactively invoking operations in the remote application by the CORBA gateway.

2. The CORBA gateway of claim 1, wherein the CORBA gateway translator includes:

a Dynamic Skeleton Interface (DSI), that, in an inbound call functionality, includes software that implements an Interface Definition Language (IDL) Interface without compiling in a server code generated by an IDL compiler to provide an object-oriented network management system and operations support system translation of the information received in accordance with at least one of an object-oriented network management system and operations support system Method Definitions and an object-oriented network management system and operations support system Management Information Model (MIM); and

a rule engine, coupled to the DSI, to utilize the an object-oriented network management system and operations support system translation to invoke an object-oriented network management system and operations support system rules in accordance with the object-oriented network management system and operations support system translation.

3. The CORBA gateway of claim 1, wherein the CORBA gateway translator includes:

a rule engine, that, in a outbound calling functionality, uses the information received to generate a CORBA request in accordance with at least one of an object-oriented network management system and operations support system Method Definitions and an object-oriented network management system and operations support system Management Information Model (MIM); and

a Dynamic Invocation Interface (DII), coupled to the rule engine, to invoke the CORBA request in a remote CORBA server object without compiling in a client code generated by an Interface Definition Language (IDL) compiler.

4. A network management support interface that automatically integrates operations utilizing a Common Object Request Broker Architecture (CORBA) protocol, the interface comprising:

a system rule engine that receives and processes events coming from a CORBA gateway; and

a CORBA gateway having a rule engine to connect one of:

connect a CORBA proxy object of the CORBA gateway to a CORBA server object of a device; and

connect a CORBA proxy object of a device to a CORBA server object of the CORBA gateway.

5. A Common Object Request Broker Architecture (CORBA) gateway in a network management support system, the CORBA gateway automatically integrating operations in the gateway, the CORBA gateway comprising:

a rule engine;

an Interface Repository (IFR) to determine, programmatically, data types and operations defined in a third party Interface Definition Language (IDL); and

a CORBA translator, coupled to the rule engine and the IFR, to translate the data types and operations into an object-oriented network management system and operations support system and generate a CORBA request on a remote CORBA object.

6. A computer-readable medium having computer-executable instructions stored thereon, wherein the computer-executable instructions include:

using a CORBA software gateway to invoke operations on a remote CORBA object; and

using the CORBA software gateway to facilitate remote invocation of network management system rules via a CORBA interface.

7. The computer-readable medium of claim 6, wherein using a CORBA software gateway to invoke operations on a remote CORBA object comprises:

processing at least one of: a resulting return value, an out argument, and an exception.

8. The computer-readable medium of claim 6, wherein using the CORBA software gateway to facilitate remote invocation of network management system rules via a CORBA interface comprises:

setting time out values to a predetermined value after which an outbound request is deemed to have failed.

9. A computer-readable medium having computer-executable instructions for a rule writer stored thereon to make outbound CORBA calls using a CORBA gateway, wherein the computer-executable instructions include:

identifying a remote server object upon which an operation is to be invoked;

obtaining an object reference to the server object; and

creating a client side proxy object.

10. The computer-readable medium of claim 9, further comprising computer-executable instructions including at least one of:

informing the CORBA gateway that a connection to the server object, taking a form of a proxy object, is to be cached;

instructing operators to provide access to and control the cache of proxy objects;

naming the operation to be invoked on the server object;

identifying an object-oriented network management system and operations support system attribute in which a return value is to be placed;

setting attribute values to be passed to the operation as input arguments and identifying object-oriented network management system and operations support system attribute values that output argument values are to be placed in;

identifying, if an exception occurs, an object-oriented network management system and operations support system attribute value that exception date is to be placed in;

invoking the operation of a remote COBRA server object and processing at least one of resulting return values, out arguments and exceptions returned by the operation; and

where desired, setting a predetermined timeout value.

11. The computer-readable medium of claim 9, further comprising, before the CORBA gateway invokes the CORBA object, computer-executable instructions including one of:

obtaining a reference to the object; and

associating resolved object references with a string key value that is reusable.

12. The computer-readable medium of claim 9, further comprising computer-executable instructions including one of:

implementing a Least Recently Used (LRU) scheme to keep a number of cached objects under a predetermined count; and

freezing proxy objects in the cache.

13. The computer-readable medium of claim 9, further comprising computer-executable instructions including one of:

using an object-oriented network management system and operations support system attribute that controls how an object reference is managed by a object cache; and

mapping CORBA operations to an object-oriented network management system and operations support system rule method that is then called from gateway analysis rules.

14. The computer-readable medium of claim 9, further comprising computer-executable instructions including one of:

declaring an object-oriented network management system and operations support system rule method using a method name and, where desired, formal parameters; and

mapping a CORBA defined operation into an object-oriented network management system and operations support system only once.

15. The computer-readable medium of claim 9, wherein one of:

accessing, by the CORBA gateway mapping process, the object-oriented network management system and operations support system database directly, and the object-oriented network management system and operations support system is one of: operating and not operating before the mapping process is executed; and

using a CORBA Interface Repository (IFR) to determine a CORBA operation and data types and exceptions used by the CORBA operation.

16. The computer-readable medium of claim 9, further comprising computer-executable instructions including at least one of:

creating, via CORBA gateway IDL mapping, Abstract Syntax Notation (ASN) data types in an object-oriented network management system and operations support system database to be mapped to and from CORBA data types by the CORBA gateway;

encoding information required to map the data types in the data type names stored in the object-oriented network management system and operations support system database;

creating attribute definitions in the object-oriented network management system and operations support system database that are used for operation return values, arguments and exceptions;

creating a rule method for each mapped IDL operation;

encoding an IDL operation name in the rule method name; and

encoding information required to map a rule method to a CORBA operation in the method name and the attribute names of formal parameters of the method.

17. A computer-readable medium having computer-executable instructions stored thereon to facilitate making inbound CORBA calls using a CORBA gateway, wherein the computer-executable instructions include at least one of:

creating server objects, wherein a single server object represents a single IDL interface;

creating multiple server objects that implement different interfaces;

creating multiple server objects to implement a same interface;

accessing a previously created server object;

deleting the previously created server object;

disabling the previously created server object from accepting inbound calls;

re-enabling a disabled server object;

providing server object references to external processes;

associating an inbound operation call to a rule set which is executed when the CORBA operation is invoked;

setting an attribute value and send the attribute value back to a client as one of: a return, an out, and an exception value; and

processing input arguments to the CORBA operation as object-oriented network management system and operations support system attribute values.

18. The computer-readable medium of claim17, wherein the computer-executable instructions further include:

creating a server object and a reference to the object by an external client before allowing the client to invoke operations on the object.

19. A computer-readable medium having computer-executable instructions stored thereon to make inbound CORBA calls using a CORBA gateway, wherein the computer-executable instructions include at least one of:

creating a server side object and making the server side object available to a remote client via the CORBA gateway of the present invention; and

calling a rule method when an operation on the object is invoked by the remote client so that the rules process attributes that input arguments were mapped into;

setting an exception attribute to indicate one of: the absence and the existence of an exception; and

if no exception is indicated, setting a value of a return value and sending a reply to the remote client.

20. A CORBA gateway, comprising:

a development time mapper, to obtain data types and operation definitions from an Interface Repository and translate data types and operation definitions obtained into data types and definitions that are written directly to a predetermined database to provide mapping information; and

a runtime translator, to translate rule operations into CORBA operations and CORBA operations into rule operations utilizing the mapping information comprising at least one of encoded Management Information Model data type definitions, encoded rule method definitions and encoded rule method formal parameter definitions that were written to the predetermined database by the development time mapper, wherein the mapping information is read by the CORBA gateway at startup and cached.